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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,956	11/25/2003	Duk-Yong Kim	5020-1-002	5912

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EXAMINER
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HANNON, CHRISTIAN A

ART UNIT	PAPER NUMBER
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2685

DATE MAILED: 02/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/721,956	<b>Applicant(s)</b> KIM, DUK-YONG	
	<b>Examiner</b> Christian A. Hannon	<b>Art Unit</b> 2685	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 2-6 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 5 & 6 objected to because of the following informalities: each of the claims recites "The antenna remote control apparatus of claims 2 and 4..." on the first line of both claims. This is improper and should be corrected to recite: "The antenna remote control apparatus of claim 4...", since claim 4 stems from claim 2. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Journey (US 4,301,397) in view of Rhodes et al (US 2004/0038714), herein Rhodes.

Regarding claim 1, Journey teaches an antenna remote control apparatus for a base station in a mobile communication system comprising a remote controller for matching a driving voltage for a motor used to control the beam direction of an antenna (Column 3, Lines 11-15; Journey), a reference signal for measuring the rotation state of the motor (Column 5, Lines 6-18; Journey), and transmitting the matched signal via a feeder cable (Column 2, Line 67; Column 3, Lines 1-3; Figure 1, Items 18 & 20;

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Journey) and an antenna controller for receiving the matched signal from the remote controller via the feeder cable, dividing the matched signal into the reference signal, and the motor driving voltage, driving the motor using the motor driving voltage, and outputting a variation in the reference signal depending on the rotation state of the motor to the remote controller via the feeder cable (Column 3, Lines 18-26 & 36-47; Journey). However Journey does not teach an RF signal for mobile communication. Rhodes teach use of an RF signal for mobile communication (Page 5, Paragraph [0119]; Journey). It would have been obvious to modify Journey to include a means for RF signaling for use in a mobile communication system, such as that taught by Rhodes, in order to provide a use for the base station antenna in Journey.

***Allowable Subject Matter***

4. Claims 2-6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 2, while Journey and Rhodes teach claim 1, both Journey and Rhodes fail to teach a frequency generator for generating the reference signal to measure the rotation state of the motor that controls the beam direction and tilting angle of the antenna, a motor voltage generator for generating the driving voltage required to drive the motor mounted to the antenna, a matcher for combining the output of the frequency generator with the output voltage of the motor voltage generator without interference and receiving the variation in the rotation state of the motor from the

antenna controller, a bias T for combining the output of the matcher with the RF signal and outputting the combined signal to the antenna controller via the feeder cable, a signal detector for detecting the variation in the rotation state of the motor from the signal received from the matcher, converting the variation to a square wave signal, and outputting the square wave signal and a controller for outputting a voltage and control signal for driving the motor and receiving a control result value from the signal detector, thereby continuously controlling the motor voltage generator and the frequency generator.

With respect to claim 3, Journey and Rhodes teach claim 1, however both Journey and Rhodes fail to teach a signal divider for receiving the output signal of the bias T via the feeder cable, dividing the received signal into the RF signal for mobile communication, the motor driving voltage signal for driving the motor, and the reference signal for a variation in the beam direction and tilting angle of the antenna, and outputting the divided signals, the motor for being driven upon receipt of the motor driving voltage from the signal divider to control the beam direction and tilting angle of the antenna and an encoder for changing a resistance value thereof according to the rotation state of the motor and outputting the reference signal changed according to the changed resistance value to the matcher.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Rose et al (US 6,891,509) discloses an antenna assembly.

Marcus et al (US 2003/0109231) discloses a control device for adjusting a different slope angle, especially of a mobile radio antenna associated with a base station, and corresponding antenna and corresponding method for modifying the slope angle.

Charles (US 6,366,237) discloses an adjustable tilt antenna.

Salmela (US 5,805,996) discloses a base station with antenna coverage directed into neighboring cells based on traffic load.

Gottl et al (US 2005/0134512) disclose a mobile radio antenna arrangement for a base station.

Sogo (US 6,078,824) discloses wireless base station equipment.

Hadzoglou et al (US 5,512,914) disclose an adjustable beam tilt antenna.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian A. Hannon whose telephone number is (571) 272-7385. The examiner can normally be reached on Mon. - Fri. 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Christian A. Hannon  
February 16, 2006



QUOCHIEN B. VUONG  
PRIMARY EXAMINER